

Trend Study 13A-12-99

Study site name: Polar Below Rim .

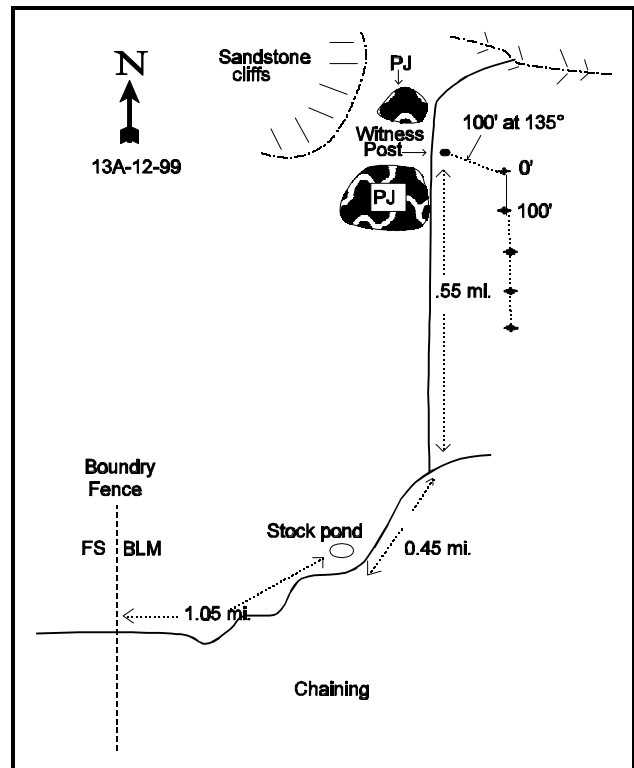
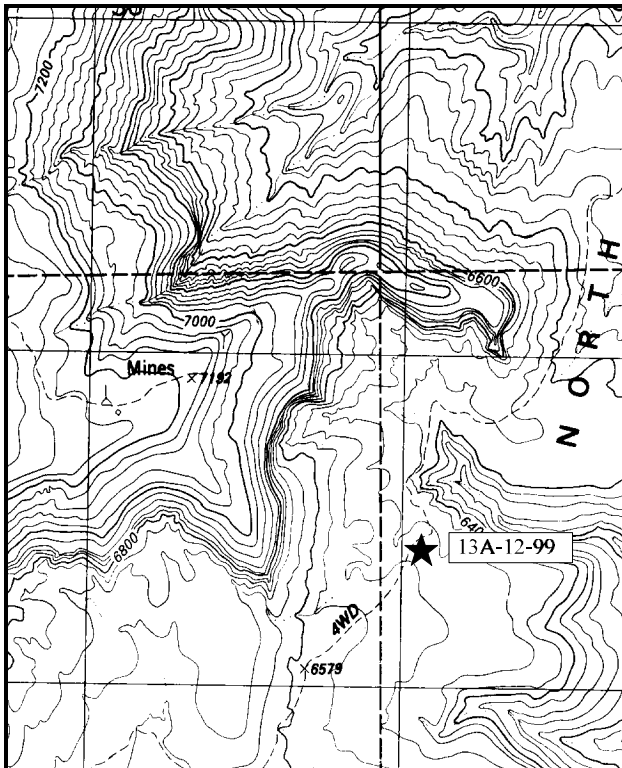
Range type: Chained, Seeded P-J .

Compass bearing: frequency baseline 165°M.

Footmark (first frame placement) 5 feet, footmarks (frequency belts) line 1 (11 & 95ft), line 2 (34ft), line 3 (59ft), line 4 (71ft).

LOCATION DESCRIPTION

From the intersection of La Sal Mountain Loop and Gateway roads, travel east towards Gateway, Colorado for 7.7 miles to the North Beaver Mesa turnoff. Turn left and go 4.2 miles to the Polar Mesa/Fisher Valley road. Continue straight through this fork, over a cattleguard and 0.85 miles to a stockpond and study 13A-12-87. Continue 0.45 miles to a fork by another stockpond. Turn right, go 0.35 miles to an intersection. Turn left and proceed 0.6 miles to a boundary fence. Continue on the road 1.05 miles, winding through the large chaining, to a stock pond. Cross the pond and continue 0.45 miles to a fork. Keep left on the main road and continue 0.55 miles to a fence post on the right side of the road. The 0-foot baseline stake, tagged #7857, is 100 feet away at 135°.



Map Name: Dolores Point North

Diagrammatic Sketch

Township 25S , Range 25E , Section SE 1/4,1

UTM 4280296.225 N, 665003.451 E

DISCUSSION

Trend Study No. 13A-12 (33-12)

The Below Polar Mesa Rim range trend study samples a large chaining on lower Beaver Mesa. The 1,540 acre treatment of this pinyon-juniper covered mesa was two-way-chained and seeded in 1969. The site is on a bench that slopes gently south towards the rim of Beaver Canyon with an elevation of 6,500 feet. The site currently supports a dense population of Wyoming big sagebrush (10,900 plants/acre) with a fair abundance of crested wheatgrass and some increase of pinyon trees. This BLM land is grazed by cattle and horses from winter to spring. It is thought to be used almost equally by deer and elk in the winter. The pellet group transects done on site in 1999 estimate there to be 52 cow days use/acre (128 cdu/ha), 13 deer days use/acre (32 ddu/ha), and 94 elk days use/acre (232 edu/ha).

The soil is a sandy clay loam which has a neutral (6.7 pH) soil reaction and has no rock or gravel on the surface. The effective rooting depth is 15 inches. Percent organic matter is quite low (1.6 %) and amount of phosphorous in the soil could be limiting with only 6.5 ppm, where 10 ppm is thought to be minimal for normal plant development. The herbaceous species provide good protective cover from erosion by providing, on average, 58% of the total vegetative cover. There is little evidence of soil loss.

The key browse species on this chaining is Wyoming big sagebrush. It has consistently made up 31 to 32% of the total vegetative cover since 1994. Percent decadence has always been below 10% with the percent dead within the population being less than 1%. The percent young age class has varied greatly, however on average it has been 38% through all readings. Most of the population shows only light to moderate use. There are a few scattered fourwing saltbush and ephedra. Other woody plants on the site are increasers like broom snakeweed, pricklypear cactus, and pinyon pine. Their populations are currently low, providing less than 1% of the total plant cover.

Grasses are an important forage resource on this site and they also provide excellent soil stability (making up almost 50% of the total vegetative cover). The most common native, blue grama, provides on average almost 50% of the grass cover and provides excellent soil protection, although it produces little forage. The larger grasses such as crested wheatgrass, needle-and-thread, galleta, and sand dropseed provide more readily available forage. Crested wheatgrass has only a moderate quadrat frequency which is low for a seeded area and provides on average only about 18% of the grass cover. Forbs, although fairly diverse, are not as important in terms of forage production as they only contribute on average about 10% of the total vegetative cover.

Percent bare ground has stayed fairly consistent between 40 and 38% through the years. There is no rock-pavement cover. Percent litter has decreased somewhat as expected with the extended drought, but stabilized at about 31%. There are no large exposed patches of bare ground due to good herbaceous cover. Most of the litter cover is debris from the two-way chaining.

1994 TREND ASSESSMENT

Soil trend for this site has slightly improved with less bare soil and an excellent herbaceous cover. The browse trend is slightly improved with increased density, lower percent decadency, and good vigor for Wyoming big sagebrush. The herbaceous understory is good, even with the extended drought conditions. Trend is stable for the perennial herbs.

TREND ASSESSMENT

soil - slightly improved

browse - slightly improved

herbaceous understory - stable

1999 TREND ASSESSMENT

Soil trend for this site has shown little change with good herbaceous cover. The browse trend is stable with continued low percent decadency and good vigor for Wyoming big sagebrush. The herbaceous understory is good, however with the continued dry conditions, there is a slight decline in the sum of nested frequency values for the perennial species and even for the annual species. Trend is slightly down.

TREND ASSESSMENT

soil - stable

browse - stable

herbaceous understory - slightly down

HERBACEOUS TRENDS --

Herd unit 13A, Study no: 12

Type	Species	Nested Frequency			Quadrat Frequency			Average Cover %	
		'87	'94	'99	'87	'94	'99	'04	'09
G	Agropyron cristatum	139	145	126	57	51	48	3.17	3.07
G	Bouteloua gracilis	_b 212	_a 177	_{ab} 201	73	63	73	6.89	9.97
G	Bromus tectorum (a)	-	53	40	-	20	17	.32	.50
G	Hilaria jamesii	22	22	13	13	8	6	.09	.13
G	Poa secunda	104	112	92	41	43	37	.97	2.25
G	Sitanion hystrix	_b 35	_a 17	_a 15	16	7	6	.08	.13
G	Sporobolus cryptandrus	-	6	4	-	2	2	.18	.18
G	Stipa comata	_b 183	_b 201	_a 101	65	76	44	3.44	1.04
G	Vulpia octoflora (a)	-	_b 168	_a 80	-	63	27	.44	1.30
Total for Annual Grasses		0	221	120	0	83	44	0.75	1.80
Total for Perennial Grasses		695	680	552	265	250	216	14.84	16.78
Total for Grasses		695	901	672	265	333	260	15.60	18.59
F	Astagalus cicer	39	52	43	18	27	22	.24	.21
F	Astragalus convallarius	-	5	2	-	2	1	.01	.03
F	Calochortus nuttallii	_c 46	_b 4	_a -	26	3	-	.01	-
F	Castilleja spp.	_a -	_b 25	_a -	-	11	-	.10	-
F	Draba reptans (a)	-	_b 139	_a -	-	60	-	.30	-
F	Erigeron pumilus	_b 67	_a 38	_{ab} 58	33	20	28	.22	.92
F	Gilia spp. (a)	-	_b 85	_a -	-	41	-	.20	-
F	Lomatium spp.	3	-	-	1	-	-	-	-
F	Medicago sativa	6	4	2	3	2	2	.18	.21
F	Microsteris gracilis (a)	-	_b 49	_a 4	-	20	1	.10	.00

Type	Species	Nested Frequency			Quadrat Frequency			Average Cover %	
		'87	'94	'99	'87	'94	'99	'04	'09
F	Oenothera albicaulis (a)	_b 5	_a -	_a -	3	-	-	-	-
F	Phlox longifolia	_b 76	_b 71	_a 22	31	32	9	.18	.09
F	Plantago patagonica (a)	-	96	73	-	41	28	.20	.53
F	Potentilla gracilis	_a -	_b 38	_a -	-	13	-	.26	-
F	Sphaeralcea coccinea	135	131	110	55	53	47	1.12	1.60
F	Tragopogon dubius	1	-	-	1	-	-	-	-
F	Tragopogon porrifolius	_b 9	_b 9	_a -	4	3	-	.01	-
Total for Annual Forbs		5	369	77	3	162	29	0.81	0.53
Total for Perennial Forbs		382	377	237	172	166	109	2.37	3.07
Total for Forbs		387	746	314	175	328	138	3.18	3.61

Values with different subscript letters are significantly different at $\alpha = 0.10$

BROWSE TRENDS --

Herd unit 13A, Study no: 12

Type	Species	Strip Frequency		Average Cover %	
		'04	'99	'04	'99
B	Artemisia tridentata wyomingensis	92	88	9.97	12.05
B	Atriplex canescens	1	2	1.00	.03
B	Eriogonum microthecum	7	4	.07	.03
B	Gutierrezia sarothrae	5	4	.15	.00
B	Opuntia spp.	20	20	.29	.05
B	Pinus edulis	0	4	1.27	5.05
B	Sclerocactus whipplei	0	8	.00	.03
Total for Browse		125	130	12.77	17.25

CANOPY COVER --

Herd unit 13A, Study no: 12

Species	Percent Cover '09
Pinus edulis	3

BASIC COVER --

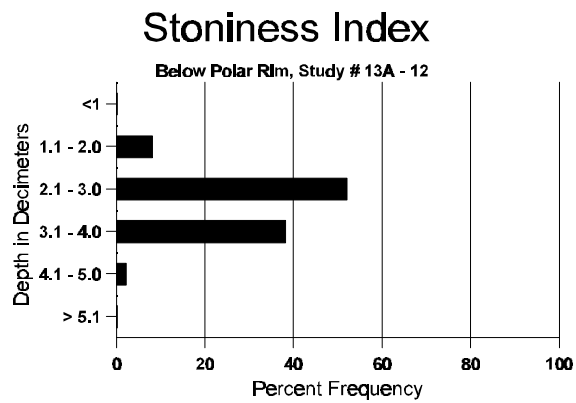
Herd unit 13A, Study no: 12

Cover Type	Nested Frequency		Average Cover %		
	'04	'99	'87	'94	'99
Vegetation	368	332	12.25	34.09	36.44
Rock	1	-	0	.00	0
Pavement	-	9	0	0	.01
Litter	391	343	42.25	30.93	31.25
Cryptogams	168	146	5.00	1.81	4.96
Bare Ground	352	321	40.50	38.21	38.89

SOIL ANALYSIS DATA --

Herd Unit 13A, Study # 12, Study Name: Below Polar Rim

Effective rooting depth (cm)	Temp °F (depth)	pH	%sand	%silt	%clay	%OM	PPM P	PPM K	dS/m
15.1	58.2 (16.2)	6.7	58.9	19.8	21.3	1.6	6.5	60.8	0.3



PELLET GROUP DATA --

Herd unit 13A, Study no: 12

Type	Quadrat Frequency		Pellet Transect Days Use/Acre (ha)
	'04	'09	
Rabbit	30	22	N/A
Horse	-	2	N/A
Elk	39	37	94 (232)
Deer	8	18	13 (32)
Cattle	-	6	52 (128)

BROWSE CHARACTERISTICS --

Herd unit 13A, Study no: 12

Field unit 15A, Study no. 12																			
A G R E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total	
		1	2	3	4	5	6	7	8	9	1	2	3	4					
Artemisia tridentata wyomingensis																			
S	87	8	-	-	-	-	-	-	-	-	7	1	-	-	533			8	
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
	99	4	6	9	-	-	-	-	-	-	19	-	-	-	380			19	
Y	87	77	5	-	-	-	-	-	-	-	79	2	1	-	5466			82	
	94	11	-	-	-	-	-	-	-	-	5	-	2	4	220			11	
	99	40	158	22	-	-	-	-	-	-	220	-	-	-	4400			220	
M	87	4	18	7	-	-	-	-	-	-	29	-	-	-	1933	20	31	29	
	94	644	11	-	-	-	-	-	-	-	599	1	52	3	13100	15	21	655	
	99	143	84	47	-	-	2	-	-	-	273	2	-	1	5520	18	31	276	
D	87	3	1	1	-	-	-	-	-	-	5	-	-	-	333			5	
	94	24	-	-	-	-	-	-	-	-	17	-	2	5	480			24	
	99	34	12	3	-	-	-	-	-	-	45	-	-	4	980			49	
X	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	100			5	
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	120			6	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>								
'87		21%			07%			.86%			+44%								
'94		02%			00%			10%			-21%								
'99		47%			14%			.91%											
Total Plants/Acre (excluding Dead & Seedlings)												'87	7732	Dec:	4%				
												'94	13800		3%				
												'99	10900		9%				
Atriplex canescens																			
S	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
	94	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1	
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
M	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	
	94	-	2	-	-	-	-	-	-	-	2	-	-	-	40	23	27	2	
	99	4	-	-	-	-	-	-	-	-	4	-	-	-	80	21	13	4	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>								
'87		00%			00%			00%											
'94		00%			00%			00%											
'99		00%			00%			00%											
Total Plants/Acre (excluding Dead & Seedlings)												'87	0	Dec:	-				
												'94	40		-				
												'99	80		-				

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Eriogonum microthecum																		
Y	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	99	3	-	-	-	-	-	-	-	-	3	-	-	-	60		3	
M	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	94	18	-	-	-	-	-	-	-	-	18	-	-	-	360	4	10	18
	99	2	-	-	-	-	-	1	-	-	3	-	-	-	60	11	8	3
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'87		00%			00%			00%										
'94		00%			00%			00%			-67%							
'99		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'87	0	Dec:	-			
												'94	360		-			
												'99	120		-			
Gutierrezia sarothrae																		
Y	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	99	3	-	-	-	-	-	-	-	-	3	-	-	-	60		3	
M	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	94	4	-	-	-	-	-	-	-	-	4	-	-	-	80	8	9	4
	99	4	-	-	-	-	-	-	-	-	4	-	-	-	80	8	12	4
D	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	94	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
X	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	20		1	
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'87		00%			00%			00%										
'94		00%			00%			00%			+29%							
'99		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'87	0	Dec:	0%			
												'94	100		20%			
												'99	140		0%			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Opuntia spp.																		
S	87	3	-	-	-	-	-	-	-	-	3	-	-	-	200		3	
	94	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
	99	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
Y	87	6	-	-	-	-	-	-	-	-	6	-	-	-	400		6	
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	99	9	-	-	-	-	-	-	-	-	9	-	-	-	180		9	
M	87	11	-	-	-	-	-	-	-	-	8	1	2	-	733	3 13	11	
	94	27	3	-	-	-	-	-	-	-	28	2	-	-	600	3 9	30	
	99	16	-	-	-	-	-	-	-	-	16	-	-	-	320	4 9	16	
D	87	2	-	-	-	-	-	-	-	-	-	-	2	-	133		2	
	94	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
	99	3	-	-	-	-	-	-	-	-	-	-	-	3	60		3	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'87		00%			00%			21%			-51%							
'94		10%			00%			00%			-10%							
'99		00%			00%			11%										
Total Plants/Acre (excluding Dead & Seedlings)												'87	1266	Dec:	11%			
												'94	620		3%			
												'99	560		11%			
Pinus edulis																		
S	87	2	-	-	-	-	-	-	-	-	2	-	-	-	133		2	
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
Y	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	99	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
M	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	99	3	-	-	-	-	-	-	1	-	4	-	-	-	80	-	4	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'87		00%			00%			00%										
'94		00%			00%			00%										
'99		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'87	0	Dec:	-			
												'94	0		-			
												'99	100		-			

A G E	Y G R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.	Total
		1	2	3	4	5	6	7	8	9	1	2	3	4			
Sclerocactus whipplei																	
S	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	99	2	-	-	-	-	-	-	-	-	2	-	-	-	40		2
Y	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	99	7	-	-	-	-	-	-	-	-	7	-	-	-	140		7
M	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0	1	4
	99	3	-	-	-	-	-	-	-	-	3	-	-	-	60	1	2
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>						
'87		00%			00%			00%									
'94		00%			00%			00%									
'99		00%			00%			00%									
Total Plants/Acre (excluding Dead & Seedlings)												'87	0	Dec:	-		
												'94	0		-		
												'99	200		-		